

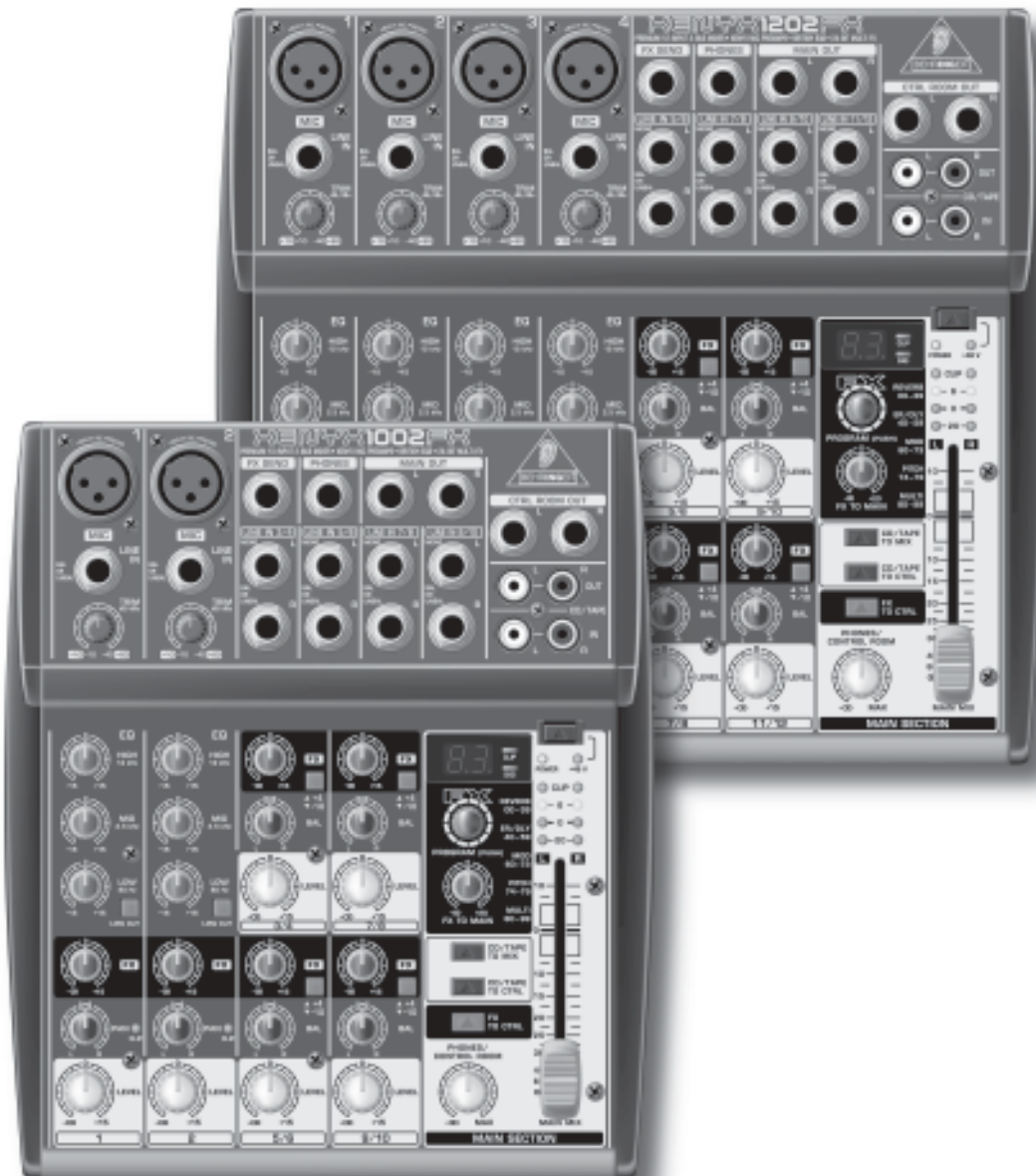
1002FX/1202FX

XENYX

User's Manual

GB

Version 1.0 January 2006



www.behringer.com



XENYX 1002FX/1202FX

IMPORTANT SAFETY INSTRUCTIONS



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To reduce the risk of electric shock, do not remove the top cover (or the rear section). No user serviceable parts inside; refer servicing to qualified personnel.

To reduce the risk of fire or electric shock, do not expose this appliance to rain and moisture. The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.



This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure—voltage that may be sufficient to constitute a risk of shock.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.



FOREWORD



Dear Customer,
I'm sure you're one of those people who have devoted themselves body and soul to your chosen area and no doubt this has made you an expert in your field.

Well, for over 30 years, my passion has been music and electronics. This not only led me to establish BEHRINGER, but also enabled me to share my enthusiasm with our employees. During all the years I've been involved with studio technology and end users, I have developed a feel for the

things that really count, such as sound quality, reliability and ease of use. What is more, I have always had the desire to test the boundaries of what is technically feasible.

It was precisely this motivation that prompted me to start work on a new series of mixing consoles. Since our EURORACKs had already set new standards world-wide, I knew the development objectives behind the next generation of mixing consoles had to be especially ambitious.

Thus, the concept and design of the new XENYX mixing consoles bear my signature. The design work, the entire circuit diagram and PCB development, and even the mechanical concepts are my own work. I carefully selected each individual component – with the aim of pushing the mixing consoles' combining analog and digital technologies to their limits.

My vision was to enable you, the user, to give free rein to your true potential and creativity. The result is mixing consoles that combine incredible performance with intuitive operability. They cannot fail to impress with their extremely flexible routing possibilities plus a fantastic wealth of functions. Innovative technologies, such as the completely new XENYX Mic Preamps and the "British" EQs, guarantee optimum sound quality. And extraordinarily high-quality components provide unrivalled reliability, even under extreme loads.

Thanks to the quality and ease of use of your new XENYX mixing console you'll soon come to appreciate that I, both personally and in my capacity as musician and sound engineer, put you, the end user, first and that these products were only possible because of the passion and the attention to detail that went into them.

Thank you for the confidence you have placed in us by purchasing the XENYX mixing console. I should also like to thank all those who, with their personal commitment and passion, have helped me create this impressive series of mixing consoles.

Kindest regards,

Uli Behringer

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1. INTRODUCTION

Congratulations! In purchasing our XENYX 1002FX/1202FX you have acquired a mixing console whose small size belies its incredible versatility and audio performance.

The BEHRINGER XENYX mixing console offers you premium-quality microphone preamplifiers with optional phantom power supply, balanced line inputs and the ability to connect external effects processors. Because of its extensive and carefully thought-out routing possibilities, your XENYX lends itself equally to both live and studio use.

The XENYX Series represents a milestone in the development of mixing console technology. With the new XENYX microphone preamps including phantom power as an option, balanced line inputs and a powerful effects section, the mixing consoles in the XENYX Series are optimally equipped for live and studio applications. Owing to state-of-the-art circuitry your XENYX console produces a warm analog sound that is unrivalled. With the addition of the latest digital technology these best-in-class consoles combine the advantages of both analog and digital technology.

The microphone channels feature high-end XENYX Mic Preamps that compare well with costly outboard preamps in terms of sound quality and dynamics and boast the following features:

- ▲ 130 dB dynamic range for an incredible amount of headroom
- ▲ A bandwidth ranging from below 10 Hz to over 200 kHz for crystal-clear reproduction of even the finest nuances
- ▲ The extremely low-noise and distortion-free circuitry guarantees absolutely natural and transparent signal reproduction
- ▲ They are perfectly matched to every conceivable microphone with up to 60 dB gain and +48 volt phantom power supply
- ▲ They enable you to use the greatly extended dynamic range of your 24-bit/192-kHz HD recorder to the full, thereby maintaining optimal audio quality

The equalizers used for the XENYX Series are based on the legendary circuitry of top-notch consoles made in Britain, which are renowned throughout the world for their incredibly warm and musical sound character. Even with extreme gain settings these equalizers ensure outstanding audio properties.

Additionally, your XENYX mixing console has an effects processor with 24-bit A/D and D/A converters included, which gives you 100 presets producing first-class reverb, delay and modulation effects plus numerous multi-effects in excellent audio quality.

CAUTION!



1.1 General mixing console functions

A mixing console fulfils three main functions:



Microphones convert sound waves into voltage that has to be amplified several-fold; then, this voltage is turned into sound that is reproduced in a loudspeaker. Because microphone capsules are very delicate in their construction,

output voltage is very low and therefore susceptible to interference. Therefore, mic signal voltage is amplified directly at the mixer input to a higher signal level that is less prone to interference. This higher, interference-safe signal level has to be achieved through amplification using an amplifier of the highest quality in order to amplify the signal and add as little noise to it as possible. The XENYX Mic Preamp performs this role beautifully, leaving no traces of noise or sound coloration. Interference that could take place at the preamplification level could affect signal quality and purity, and would then be passed on to all other devices, resulting in inaccurate sounding program during recording or playback.

Signals fed into the mixer using a DI-box (direct injection) or the output of a sound card or a keyboard, often have to be adjusted to the operating level of your mixing console.

Using the equalizers found in each channel strip, you can simply, quickly and effectively adjust the way a signal sounds.



Individual, processed signals from the channel strips are compiled on busses and are fed into the main section for further processing. Connections for recording equipment, power amplifiers, headphones as well as CD/tape connectors are available here. The mix is sent to the internal FX processors or external effects processors via aux sends and returns. Similarly, a mix can be created for the musicians on the stage (monitor mix).



All other mixing console functions fall under this vital category. Creating a mix means primarily adjusting the volume levels of individual instruments and voices to one another as well as giving them the appropriate weight within the overall frequency spectrum. Likewise, you'll have to sensibly spread individual voices across the stereo image of a signal. At the end of this process, adjusting the level of the entire mix to other equipment in the signal path is required (e. g. recorder/crossover/amplifier).

The interface of BEHRINGER mixing consoles is optimized for these tasks, enabling you to easily keep track of the signal path.

1.2 The user's manual

The user's manual is designed to give you both an overview of the controls, as well as detailed information on how to use them. In order to help you understand the links between the controls, we have arranged them in groups according to their function. If you need to know more about specific issues, please visit our website at <http://www.behringer.com>. Additional information and explanations about various music industry/audio technology terminology can be found on individual product pages as well as in the glossary area of www.behringer.com.



For the moment, just try and trace the signal path from the microphone input to the FX SEND connector. Don't be put off by the huge range of possibilities; it's easier than you think! If you look at the overview of the controls at the same time, you'll be able to quickly familiarize yourself with your mixing console and you'll soon be making the most of all its many possibilities.

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1.3 Before you get started

1.3.1 Shipment

The mixing console was carefully packed in the factory to survive safe transport. Nevertheless, we recommend that you examine the packaging and its contents for any physical damage that may have occurred during transit.

2. CONTROL ELEMENTS AND CONNECTORS

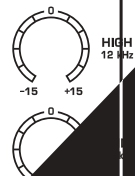
This chapter describes the various control elements of your mixing console. All controls, switches and connectors will be discussed in detail.

2.1 Mono channels

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2.2 Initial operation

Allow enough space around the unit for cooling. To prevent overheating please do not place your mixing console next to other high temperature equipment such as radiators.



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Use the *TRIM* control to adjust the input gain. This control should always be turned fully counterclockwise whenever you connect or disconnect a signal source to one of the inputs.

The scale has 2 different value ranges: the first value range () to () refers to the MIC input and shows the gain for the signals fed in there.

The second value range () to () refers to the line input and shows its gain. The settings for equipment with standard line-level signals (-10 dBV or +4 dBu) look like this: While the TRIM control is turned all the way down, connect your equipment. Set the TRIM control to the external devices' standard output level. If that unit has an output signal level display, it should show 0 dB during signal peaks. For +4 dBu, turn up TRIM slightly, for -10 dBV a bit more. Tweaking is done using the CLIP LED.

All mono input channels include a 3-band equalizer. All bands provide boost or cut of up to 15 dB. In the central position, the equalizer is inactive.

The circuitry of the British EQs is based on the technology used in the best-known top-of-the-line consoles and providing a warm sound without any unwanted side effects. The result are extremely musical equalizers which, unlike simple equalizers, cause no side effects such as phase shifting or bandwidth limitation, even with extreme gain settings of ± 15 dB.

The upper (HIGH) and the lower band (LOW) are shelving filters that increase or decrease all frequencies above or below their cut-off frequency. The cut-off frequencies of the upper and lower band are 12 kHz and 80 Hz respectively. The MID band is configured as a peak filter with a center frequency of 2.5 kHz. Unlike shelving filters, the peak filter processes a frequency range that extends upwards and downwards around its middle frequency.

In addition, the mono channels are equipped with a steep *LOW CUT* filter (slope at 18 dB/oct., -3 dB at 75 Hz) designed to eliminate unwanted low-frequency signal components. These can be noises created by hand-held microphones, subsonic noise or plosive sounds created by highly sensitive microphones.

FX sends enable you to feed signals via a variable control from one or more channels and sum these signals to a bus. The bus appears at the console's *FX* send output and can be fed from there to an external effects device. The return from the effects unit is then brought back into the console on the stereo channels. Each *FX* send is mono and features up to +15 dB gain.

As the name suggests, the *FX* sends of the XENYX mixing consoles are intended to drive effects devices (reverb, delay, etc.) and are therefore configured post-fader. This means that the mix between dry signal and effect remains at the level determined by the channel's aux send, irrespective of the channel fader setting. If this were not the case, the effects signal of the channel would remain audible even when the fader is lowered to zero. With XENYX mixing consoles, the channel fader is called *LEVEL* control.

In the 1002FX/1202FX, the *FX* send is routed directly to the built-in effects processor. To make sure that the effects processor receives an input signal, you shouldn't turn this control all the way to the left (-∞).

The *PAN* control determines the position of the channel signal within the stereo image. This control features a constant-power characteristic, which means the signal is always maintained at a constant level, irrespective of position in the stereo panorama.

The *LEVEL* control determines the level of the channel signal in the main mix.



The *CLIP*-LED's of the mono channels illuminate when the input signal is driven too high, which could cause distortion. If this happens, use the TRIM control to reduce the preamp level until the LED does not light anymore.

2.2 Stereo channels

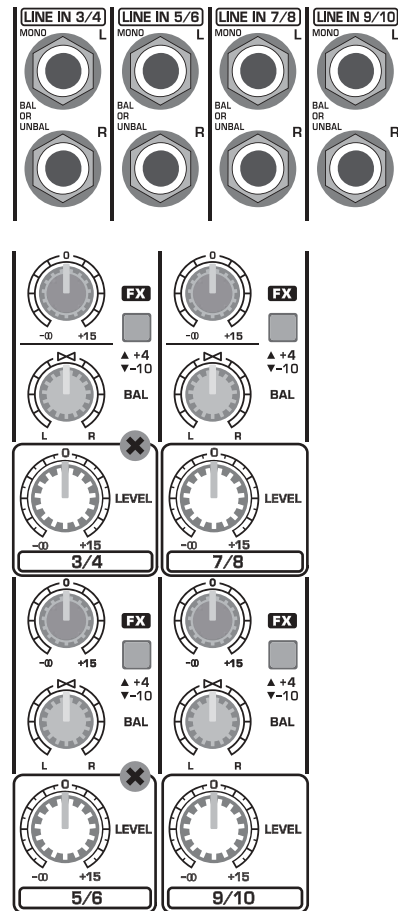


Fig. 2.2: Connectors and controls on the stereo channels

Each stereo channel has two balanced line level inputs on $\frac{1}{4}$ " connectors for left and right channels. If only the connector marked "L" (left) is used, the channel operates in mono. The stereo channels are designed to handle typical line level signals. Both inputs will also accept unbalanced connectors.

The *FX* send of the stereo channels functions similar to that of the mono channels. However, since the *FX* send bus is mono, a mono sum is first taken from the stereo input before it is sent to the *FX* bus.

The *BAL*(ANCE) control determines the levels of left and right input signals relative to each other before both signals are then routed to the main stereo mix bus. If a channel is operated in mono via the left line input, this control has the same function as the *PAN* control used in the mono channels.

The *LEVEL* control determines the volume of the channel being sent to the main mix.

The stereo inputs of the XENYX have an input sensitivity switch which selects between +4 dBu and -10 dBV. At -10 dBV (home-recording level), the input is more sensitive (requires less level to drive it) than at +4 dBu (studio level).

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LEVEL SETTING:

To correctly set the gains of the channels, first set the LEVEL controls of the input channels to their center positions. Then use the TRIM controls to increase the input amplification until signal peaks show 0 dB on the level meter.

When recording to digital recorders, the recorder's peak meter should not go into overload. While analog recorders can be overloaded to some extent, creating only a certain amount of distortion, digital recorders distort quickly when overloaded. In addition, digital distortion is not only undesirable, but also renders your recording completely useless.

When recording to an analog device, the VU meters of the recording machine should reach approx. +3 dB with low-frequency signals (e.g. kick drum). Due to their inertia VU meters tend to display too low a signal level at frequencies above 1 kHz. This is why, for example, a Hi-Hat should only be driven as far as -10 dB. Snare drums should be driven to approx. 0 dB.



Use the *MAIN MIX* fader to adjust the volume of the main out.

Use the *PHONES/CONTROL ROOM* control to adjust the signal level of the CONTROL ROOM and PHONES outputs.

When the *CD/TAPE TO MIX* switch is pressed, the CD/tape input is assigned to the main mix providing an additional input for tape machines, MIDI instruments or other signal sources that do not require any processing.

Press the *CD/TAPE TO CTRL* switch if you want to monitor the CD/tape input via the CTRL ROOM and PHONES outputs. A typical studio application of this function is recording music into a digital audio workstation (DAW) with simultaneous reproduction (see ch. 3.1).



If you want to monitor only the effects signal in your headphones or monitor speaker(s), press the *FX TO CTRL* switch. Now the signal of the effects processor can be monitored alone, and the main mix and/or CD/tape signal is no longer present on the phone and control room outputs.

2.5 Digital effects processor



3. APPLICATIONS

3.1 Recording studio

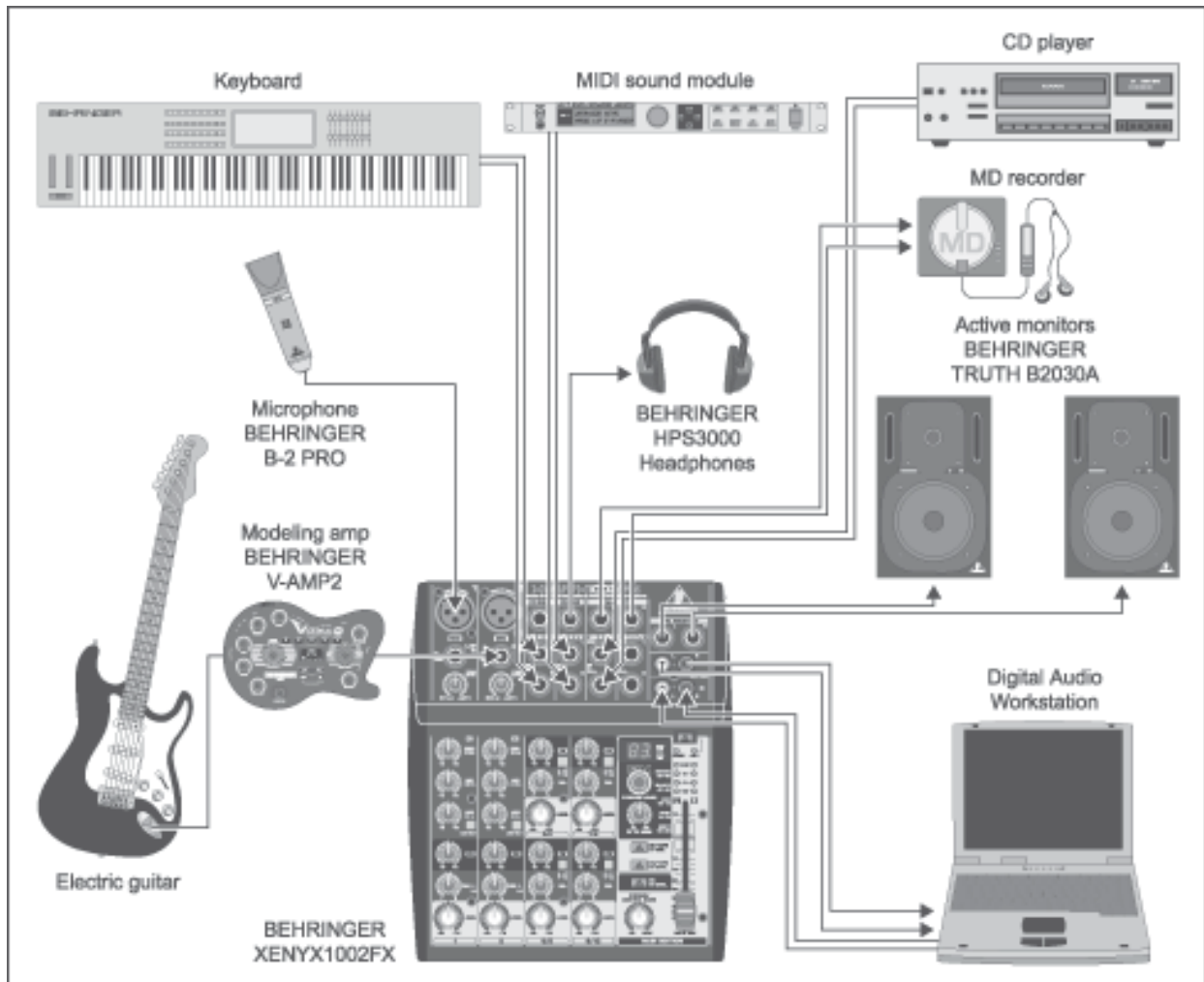


Fig. 3.1: The 1002FX in a recording studio

Even though most of the tasks in a studio can nowadays be accomplished using a computer, a mixing console remains an unavoidable piece of equipment that lets you effectively manage audio inputs and outputs: microphone signals need to be pre-amplified prior to being recorded, and the quality of microphone sound is often worked on; recording and playback signals must be routed to the appropriate connectors or integrated into the mix; the volume of headphones and studio monitors needs to be adjusted, and so on. The extensively equipped main section of the XENYX mixing consoles provides concrete benefits to you.

Connect your sound sources to the microphone/line inputs of the mixing console. Connect the master machine (DAT/minidisk recorder) to the main outputs. Your monitor speakers are connected to the control room outputs; the headphones are connected to the headphone output. Now, connect the CD/tape outputs to the sound card inputs on your DAW (Digital Audio Workstation). Connect the outputs of the sound card in your computer to the CD/tape inputs.

Once in the mixing console, the recording signal is pre-amplified, EQ'ed and is then routed to the main bus. Use the LEVEL control to adjust the recording signal level. The overall level of the signal going to the computer is adjusted using the MAIN MIX fader. To make sure that the signal is actually being recorded, use either

the phones bus or the control room bus to monitor not the main mix signal (i.e. the output signal of the mixing console, before the recording); instead, monitor the returns of the sound card that is connected to the CD/tape inputs. To this end, press the CD/TAPE TO CTRL switch and adjust the monitoring volume using the PHONES/CONTROL ROOM control. Doing so, you can record additional tracks in addition to a signal already brought in (so-called overdubs). Use the direct monitoring function of your DAW.





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5. SPECIFICATIONS



Type	XLR, electronically balanced, discrete input circuit
Mic E.I.N. (20 Hz - 20 kHz)	
@ 0 Ω source resistance	-132.7 dB / 137 dB A-weighted
@ 50 Ω source resistance	-130 dB / 133.9 dB A-weighted
@ 150 Ω source resistance	-127.1 dB / 130.9 dB A-weighted
Frequency response	<10 Hz - 200 kHz (-1 dB)
Gain range	+10 to +60 dB
Max. input level	+12 dBu @ +10 dB gain
Impedance	approx. 2.6 kΩ balanced
Signal-to-noise ratio	-107 dB / -111 dB A-weighted (0 dBu In @ +22 dB gain)
	0.005% / 0.003% A-weighted

Type	¼" TRS connector electronically balanced
Impedance	approx. 20 kΩ balanced 10 kΩ unbalanced
Gain range	-10 to +40 dB
Max. input level	+20 dBu @ 0 dB Gain

1

Main fader closed	85 dB
Channel fader closed	88 dB

Microphone input to main out	
<10 Hz - 80 kHz	+0 dB / -1 dB
<10 Hz - 137 kHz	+0 dB / -3 dB

Type	¼" TRS connector, electronically balanced
Impedance	approx. 20 kΩ bal. / 10kΩ unbal. (+4 dBu operating level) approx. 20 kΩ bal. / 5kΩ unbal. (-10 dBV)
Max. input level	+22 dBu
Low	80 Hz / ±15 dB
Mid	2.5 kHz / ±15 dB
High	12 kHz / ±15 dB

Type	¼" TRS connector, unbalanced
Impedance	approx. 120 Ω
Max. output level	+22 dBu

Type	¼" TRS connector, unbalanced
Impedance	approx. 120 Ω
Max. output level	+22 dBu

Type	¼" TRS connector, unbalanced
Impedance	approx. 120 Ω
Max. output level	+22 dBu

Type	¼" TRS connector, unbalanced
Max. output level	+19 dBu / 150 Ω (+25 dBm)

2

Noise	
Main mix @ -∞,	
Channel fader -∞	-105 dB / -108 dB A-weighted
Main mix @ 0 dB,	
Channel fader -∞	-94 dB / -97 dB A-weighted
Main Mix @ 0 dB,	
Channel fader @ 0 dB	-83 dB / -85 dB A-weighted

Converter	24-Bit Sigma-Delta
Sampling rate	40 kHz

Power consumption	1002FX: 16 W 1202FX: 17 W
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USA/Canada	120 V~, 60 Hz, MXUL6 adapter
U.K./Australia	240 V~, 50 Hz, MXUK6 adapter
Europe	230 V~, 50 Hz, MXEU6 adapter
China/Korea	220 V~, 50 Hz, MXCN6 adapter
Japan	100 V~, 60 Hz, MXJP6 adapter

Dimensions (H x W x D)	1 5/6" / 1 1/2" x 7 2/5" x 8 2/3" (47 mm / 37 mm x 189 mm x 220 mm)
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Weight (net)	approx. 2.31 lbs (1.05 kg)
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Dimensions (H x W x D)	1 5/6" / 1 1/2" x 9 1/2" x 8 2/3" (47 mm / 37 mm x 242 mm x 220 mm)
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Weight (net)	approx. 2.97 lbs (1.35 kg)
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Measuring conditions:

- 1 kHz rel. to 0 dBu; 20 Hz - 20 kHz; line input; main output; unity gain.
- 20 Hz - 20kHz; measured at main output. Channels 1 - 4 unity gain; EQ flat; all channels on main mix; channels 1/3 as far left as possible, channels 2/4 as far right as possible. Reference = +6 dBu.

BEHRINGER is constantly striving to maintain the highest professional standards. As a result of these efforts, modifications may be made from time to time to existing products without prior notice. Specifications and appearance may differ from those listed or illustrated.

6. WARRANTY

1. This warranty does not exclude or limit the buyer's statutory rights provided by national law, in particular, any such rights against the seller that arise from a legally effective purchase contract.

2. The warranty regulations mentioned herein are applicable unless they constitute an infringement of national warranty law.

Please do remember to register your new BEHRINGER equipment right after your purchase by visiting www.behringer.com (alternatively www.behringer.de) and kindly read the terms and conditions of our warranty carefully. Registering your purchase and equipment with us helps us process your repair claims quicker and more efficiently. Thank you for your cooperation!

1. BEHRINGER (BEHRINGER International GmbH including all BEHRINGER subsidiaries listed on the enclosed page, except BEHRINGER Japan) warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of one (1) year* from the original date of purchase, in accordance with the warranty regulations described below. If the product shows any defects within the specified warranty period that are not excluded from this warranty as described under § 5, BEHRINGER shall, at its discretion, either replace or repair the product using suitable new or reconditioned parts. In the case that other parts are used which constitute an improvement, BEHRINGER may, at its discretion, charge the customer for the additional cost of these parts.

2. If the warranty claim proves to be justified, the product will be returned to the user freight prepaid.

3. Warranty claims other than those indicated above are expressly excluded.

1. To obtain warranty service, the buyer (or his authorized dealer) must call BEHRINGER (see enclosed list) during normal business hours returning the product. All inquiries must be accompanied by a description of the problem. BEHRINGER will then issue a return authorization number.

2. Subsequently, the product must be returned in its original shipping carton, together with the return authorization number to the address indicated by BEHRINGER.

3. Shipments without freight prepaid will not be accepted.

1. Warranty services will be furnished only if the product is accompanied by a copy of the original retail dealer's invoice. Any product deemed eligible for repair or replacement under the terms of this warranty will be repaired or replaced.

2. If the product needs to be modified or adapted in order to comply with applicable technical or safety standards on a national or local level, in any country which is not the country for which the product was originally developed and manufactured, this modification/adaptation shall not be considered a defect in materials or workmanship. The warranty does not cover any such modification/adaptation, irrespective of whether it was carried out properly or not. Under the terms of this warranty, BEHRINGER shall not be held responsible for any cost resulting from such a modification/adaptation.

3. Free inspections and maintenance/repair work are expressly excluded from this warranty, in particular, if caused by improper handling of the product by the user. This also applies to defects caused by normal wear and tear, in particular, of faders, crossfaders, potentiometers, keys/buttons, tubes, guitar strings, illuminants and similar parts.

4. Damages/defects caused by the following conditions are not covered by this warranty:

- ▲ improper handling, neglect or failure to operate the unit in compliance with the instructions given in BEHRINGER user or service manuals.
- ▲ connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used.
- ▲ damages/defects caused by force majeure or any other condition that is beyond the control of BEHRINGER.

5. Any repair or opening of the unit carried out by unauthorized personnel (user included) will void the warranty.

6. If an inspection of the product by BEHRINGER shows that the defect in question is not covered by the warranty, the inspection costs are payable by the customer.

7. Products which do not meet the terms of this warranty will be repaired exclusively at the buyer's expense. BEHRINGER will inform the buyer of any such circumstance. If the buyer fails to submit a written repair order within 6 weeks after notification, BEHRINGER will return the unit C.O.D. with a separate invoice for freight and packing. Such costs will also be invoiced separately when the buyer has sent in a written repair order.

This warranty is extended exclusively to the original buyer (customer of retail dealer) and is not transferable to anyone who may subsequently purchase this product. No other person (retail dealer, etc.) shall be entitled to give any warranty promise on behalf of BEHRINGER.

Failure of BEHRINGER to provide proper warranty service shall not entitle the buyer to claim (consequential) damages. In no event shall the liability of BEHRINGER exceed the invoiced value of the product.

* Customers in the European Union please contact BEHRINGER Germany Support for further details.

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